

**Notice of Allowability**

Application No.

10/790,168

Examiner

Siu M. Lee

Applicant(s)

SOBCHAK ET AL.

Art Unit

2611

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on 7/12/2007.
2. ☒ The allowed claim(s) is/are 1,3-27,29-37,39 and 40.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No./Mail Date <u>9-25-07</u> |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                                      |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                     |
|  | 9. <input type="checkbox"/> Other _____  |

## DETAILED ACTION

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with John A. FortKort (512-343-4525) on 9/20/2007.

(1) Regarding claim 35:

Lines 1-2, replace "A digital signal processor having digital hardware to perform acts for removing narrowband interference, the acts comprising:" with **---A method for removing narrowband interference perform by a digital signal processor having digital hardware, the method comprising:---**.

Line 11-12, replace the paragraph "wherein the filtering is performed by one of a high pass filter or a band pass filter, the high pass filter operable when the narrowband interference is a low frequency interferer." with the following paragraph **---wherein the filtering is performed by one of a high pass filter or a band pass filter, the high pass filter operable when the narrowband interference is a low frequency interferer; and wherein the metrics are generated in a soft decision metric generator that is coupled to receive an average magnitude associated with each of the separate narrowband signals.---**

(2) Regarding claim 36:

Line 1; replace "The digital signal processor of claim 35 wherein the acts further comprise:" with **"The method of claim 35 further comprise:---**

(3) Regarding claim 37:

Line 1, replace "The digital signal processor of claim 35" to **"The method of claim 35---**

(4) Regarding claim 39:

Line 1, replace "The digital signal processor of claim 35" to **---The method of claim 35---**

(5) Regarding claim 40:

Line 1, replace "The digital signal processor of claim 35" to **---The method of claim 35---**

***Allowable Subject Matter***

2. Claims 1, 3-27, 29-37, and 39-40 are allowed.
3. The following is an examiner's statement of reasons for allowance:

(1) Regarding claim 1, 3-21:

The present invention describes a narrowband interference cancellation system comprising a narrowband processing component configured to receive a signal and identify one or more narrowband interference in the received signal, the narrowband processing component including a filter bank configured to separate the received signal into a predetermined number of channel bands; a wide band processing component

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coupled to receive both real and quadrature component of the received signal, the wide band processing component configured to provide an average level for an unfiltered version of the received signal; a soft decision metric generator coupled to both the narrowband processing component and the wide band processing component, the soft decision metric generator configured to produce metrics based on predetermined threshold; and a filter component configured to received coefficients from the soft decision metric generator, the filter component configured to cancel the one or more narrowband interference; wherein the filter bank is coupled to a plurality of magnitude estimators configured to determine a magnitude estimate fro each of the separate channel bands. The closest prior art Yeap et al. (US 2001/0050987 A1) and Furukawa (US 6,115,614) together disclose a similar system but fail to disclose wherein the filter bank is coupled to a plurality of magnitude estimators configured to determine a magnitude estimate fro each of the separate channel bands. This distinct feature has been added to the independent claim 1; therefore, rendering claims 1 and 3-21 allowable.

(2) Regarding claims 22-27, 29-37, and 39-40:

Claim 22 and 35 directed to a method of canceling narrowband interference in a wide bandwidth receiver. The closest prior art, Yeap et al. (US 2001/0050987 A1) discloses a similar method but fail to disclose wherein the metric are generated in a soft decision metric generator that is coupled to receive an average magnitude associated with each of the separate narrowband signals. This distinct feature has been added to

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the independent claim 22 and 35; therefore, rendering claims 22-27, 29-37, and 39-40 allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Siu M. Lee whose telephone number is (571) 270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Siu M Lee  
Examiner  
Art Unit 2611  
9/25/2007



CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER